WHAT IS CLAIMED IS:

1. An ink-jet recording apparatus for forming an image on a recording medium by using a plurality of ink discharge means which discharge inks;

said plural ink discharge means corresponding to a plurality of inks with different dye densities in inks, and each of said plural inks having a different penetrability.

2. The ink-jet recording apparatus according to claim 1, wherein said plural inks have different component ratios of a surface active component in said inks.

3. The ink-jet recording apparatus according to claim 2, wherein, among said plural inks, an ink having a relatively high dye density in ink has a lower component ratio of said surface active component than an ink having a relatively low dye density.

4. The ink-jet recording apparatus according to claim 1, wherein said plural inks consists of the first ink with a relatively high dye density in ink and the second ink with a relatively low dye density in ink in comparison with the first ink, said first ink containing no surfactant ~~surface active component~~ in a composition thereof, while said second ink containing said surfactant ~~surface~~

Sub J2 ~~active component in a composition thereof.~~

5. 3 The ink-jet recording apparatus according to claim 1, comprising an image processing means which controls the number of recording dots per unit area of said recording medium in accordance with an inputted image signal to perform gradation recording.

6. 4 The ink-jet recording apparatus according to claim 5, 3 further comprising a distribution means for distributing into recording data for said plural inks with different dye densities in inks in accordance with a gradation indicated by an inputted image signal.

7. 5 The ink-jet recording apparatus according to claim 1, wherein said ink discharge means is means, which discharges an ink by utilizing heat energy and which is provided with an electrothermal energy converting means for generating heat energy to be given to an ink.

8. 6 The ink-jet recording apparatus according to claim 7, 5 wherein said ink discharge means causes an ink to develop a state change by the heat energy applied by said electrothermal energy converting means, thereby discharging the ink through a discharge port according to said state change.

9. The ink-jet recording apparatus according to claim 1, further comprising an image reading means for reading an original image.

10. The ink-jet recording apparatus according to claim 1, further comprising an image transmitting and/or receiving means.

11. The ink-jet recording apparatus according to claim 10, further comprising an image reading means for reading an original image.

12. The ink-jet recording apparatus according to claim 1, further comprising an input means for entering a recording signal.

13. The ink-jet recording apparatus according to claim 12, wherein said input means is a keyboard.

14. An ink-jet recording method for forming an image on a recording medium by using a plurality of ink discharge means which discharge inks;

said plural ink discharge means corresponding to a plurality of inks with different dye densities in inks, and each of said plural inks having a different penetrability.

15. The ink-jet recording method according to claim 14, wherein said plural inks have different component ratios of a surface active component in said inks.

16. The ink-jet recording method according to claim 15, wherein, among said plural inks, an ink having a relatively high dye density in ink has a lower component ratio of said surface active component than an ink having relatively low dye density.

17. The ink-jet recording method according to claim 14, wherein said plural inks consists of the first ink with a relatively high dye density in ink and the second ink with a relatively low dye density in ink in comparison with the first ink, said first ink containing no ~~surface active component~~ surfactant in a composition thereof, while said second ink containing said ~~surface active component~~ surfactant in a composition thereof.

~~18~~ 14. The ink-jet recording method according to ~~claim 14~~ 12, comprising an image processing step wherein the number of recording dots per unit area of said recording medium is controlled in accordance with an inputted image signal to perform gradation recording.

~~19~~ 15. The ink-jet recording method according to

claim 14, further comprising a distribution step distributing into recording data for said plural inks with different dye densities in inks in accordance with a gradation indicated by an inputted image signal.

20. The ink-jet recording method according to claim 12, wherein said ink discharge means is a means, which discharges an ink by utilizing heat energy and which causes the ink to develop a state change by heat energy and to be discharged through a discharge port according to said state change.

21. An ink-jet recording apparatus, comprising a recording head equipped with a plurality of ink discharge means, which discharge ink, and forming an image on a recording medium by discharging the ink through a plurality of discharge ports of said recording head, wherein the plural discharge ports of said recording head are comprised of a plurality of discharge port trains corresponding to a plurality of inks, each of the inks having a different dye density in ink, and each of said plural inks with different dye densities in ink has different penetrability on a recording medium.

22. The ink-jet recording apparatus according to claim 17, comprising a plurality of said recording

heads, each of said plural recording heads discharging ink of a different color.

23. The ink-jet recording apparatus according to claim 21, wherein said plural inks with different dye densities in ink have different component ratios of surface active component in ink.

24. The ink-jet recording apparatus according to claim 23, wherein, among said plural inks, an ink having a relatively high dye density in ink has a lower component ratio of said surface active component than an ink having a relatively low dye density.

25. The ink-jet recording apparatus according to claim 21, wherein said plural inks with different dye densities in ink consists of the first ink with a relatively high dye density in ink and the second ink with a relatively low dye density in ink in comparison with the first ink, said first ink containing no surfactant ~~surface active component~~ in a composition thereof, while said second ink containing said surfactant ~~surface active component~~ in a composition thereof.

26. The ink-jet recording apparatus according to claim 21, comprising an image processing means which controls the number of recording dots per unit area of

said recording medium in accordance with an inputted image signal to perform gradation recording.

27. The ink-jet recording apparatus according to claim 26, further comprising a distribution means which divide entered data as recording data for said plural inks with different dye densities in inks in accordance with a gradation indicated by an inputted image signal.

28. The ink-jet recording apparatus according to claim 21, wherein said ink discharge means is a means, which discharges an ink by utilizing heat energy and which is provided with an electrothermal energy converting means for generating heat energy to be given to an ink.

29. The ink-jet recording apparatus according to claim 28, wherein said ink discharge means causes an ink to develop a state change by the heat energy applied by said electrothermal energy converting means, thereby discharging the ink through a discharge port according to said state change.

30. An ink-jet recording apparatus, comprising a plurality of recording heads equipped with a plurality of ink discharge means, which discharge ink through discharge ports, and forming an image on a recording

medium by discharging the ink through a plurality of discharge ports of said recording heads, wherein said plural recording heads correspond to a plurality of inks with different dye densities in ink, and each of said plural inks with different dye densities in ink has different penetrability on a recording medium.

31. The ink-jet recording apparatus according to claim 30, wherein said plural inks with different dye densities in ink have different component ratios of surface active component in ink.

32. The ink-jet recording apparatus according to claim 31, wherein, among said plural inks, an ink having a relatively high dye density in ink has a lower component ratio of said surface active component than an ink having a relatively low dye density.

33. The ink-jet recording apparatus according to claim 30, wherein said plural inks with different dye densities in ink consists of the first ink with a relatively high dye density in ink and the second ink with a relatively low dye density in ink in comparison with the first ink, said first ink containing no surfactant ~~surface active component~~ in a composition thereof, while said second ink containing said surfactant ~~surface active component~~ in a composition thereof.

34. The ink-jet recording apparatus according to claim 30, wherein said ink discharge means is a means, which discharges an ink by utilizing heat energy and which is provided with an electrothermal energy converting means for generating heat energy to be given to an ink.

35. The ink-jet recording apparatus according to claim 34, wherein said ink discharge means causes an ink to develop a state change by the heat energy applied by said electrothermal energy converting means, thereby discharging the ink through a discharge port according to said state change.

36. A recorded article formed by discharged inks adhering to a recording medium, comprising a plurality of inks which belong to the same color group but have different dye densities in ink and different penetrabilities on the recording medium.

37. An ink-jet recording apparatus which forms an image on a recording medium by using a plurality of ink discharge means discharging inks, wherein said plural ink discharge means correspond to a plurality of inks having different dye densities in ink, and said plural inks having different dye densities in ink are divided and held in the same ink container.

38. The ink-jet recording apparatus according to claim 37, wherein said plural inks having different dye densities in ink contain dyes of the same color group.

39. The ink-jet recording apparatus according to claim 37, wherein said plural inks having different dye densities in ink are held in said ink container, the volume of each of said inks being different.

40. The ink-jet recording apparatus according to claim 37, wherein said plural inks having different dye densities in ink have different penetrabilities on a recording medium.

41. The ink-jet recording apparatus according to claim 40, wherein said plural inks with different dye densities in ink have different component ratios of surfactant ~~surface active component~~ in ink.

42. The ink-jet recording apparatus according to claim 41, wherein, among said plural inks, an ink having a relatively high dye density in ink has a lower component ratio of said surfactant ~~surface active component~~ than an ink having a relatively low dye density.

43. The ink-jet recording apparatus according to claim 41, wherein said plural inks with different dye

densities in ink consists of the first ink with a relatively high dye density in ink and the second ink with a relatively low dye density in ink in comparison with the first ink, said first ink containing no surface active component in a composition thereof, while said second ink containing said surface active component in a composition thereof.

~~44~~ 34. The ink-jet recording apparatus according to claim ~~41~~ 31, comprising an image processing means which controls the number of recording dots per unit area of said recording medium in accordance with an inputted image signal to perform gradation recording.

~~45~~ 35. The ink-jet recording apparatus according to claim ~~44~~ 34, further comprising a distribution means which divide entered data as recording data for said plural inks with different dye densities in inks in accordance with a gradation indicated by an inputted image signal.

~~46~~ 36. The ink-jet recording apparatus according to claim ~~41~~ 31, wherein said ink discharge means is a means, which discharges an ink by utilizing heat energy and which is provided with an electrothermal energy converting means for generating heat energy to be given to an ink.

47. The ink-jet recording apparatus according to claim 46, wherein said ink discharge means causes an ink to develop a state change by the heat energy applied by said electrothermal energy converting means, thereby discharging the ink through a discharge port according to said state change.

48. The ink-jet recording apparatus according to claim 41, further comprising an image reading means for reading an original image.

49. The ink-jet recording apparatus according to claim 41, further comprising an image transmitting and/or receiving means.

50. The ink-jet recording apparatus according to claim 49, further comprising an image reading means for reading an original image.

51. The ink-jet recording apparatus according to claim 41, further comprising an input means for entering a recording signal.

52. The ink-jet recording apparatus according to claim 51, wherein said input means is a keyboard.

53. An ink-jet recording apparatus, comprising a

plurality of recording heads equipped with a plurality of ink discharge means, which discharge ink through discharge ports, and forming an image on a recording medium by discharging the ink through a plurality of discharge ports of said recording heads, wherein said plural recording heads correspond to a plurality of inks with different dye densities in ink, and said plural inks of different dye densities in ink are divided and held in the same ink container.

54. The ink-jet recording apparatus according to claim 53, wherein said plural inks having different dye densities in ink contain dyes of the same color group.

55. The ink-jet recording apparatus according to claim 53, wherein said plural inks having different dye densities in ink are held in said ink container, the volume of each of said inks being different.

56. The ink-jet recording apparatus according to claim 53, wherein the plural discharge ports of said recording heads comprise a plurality of discharge port trains corresponding to a plurality of different color materials, and each of said plural recording heads is capable of discharging a plurality of the same color material.

57. The ink-jet recording apparatus according to claim 53, comprising an image processing means which controls the number of recording dots per unit area of said recording medium in accordance with an inputted image signal to perform gradation recording.

58. The ink-jet recording apparatus according to claim 57, further comprising a distribution means which divide entered data as recording data for said plural inks with different dye densities in inks in accordance with a gradation indicated by an inputted image signal.

59. The ink-jet recording apparatus according to claim 53, wherein said ink discharge means is a means, which discharges an ink by utilizing heat energy and which is provided with an electrothermal energy converting means for generating heat energy to be given to an ink.

60. The ink-jet recording apparatus according to claim 59, wherein said ink discharge means causes an ink to develop a state change by the heat energy applied by said electrothermal energy converting means, thereby discharging the ink through a discharge port according to said state change.

61. An ink-jet recording apparatus comprising a

plurality of recording heads equipped with a plurality of ink discharge means discharging inks and forming an image on a recording medium by discharging the inks from a plurality of discharge ports of said recording heads, wherein said plural recording heads correspond to a plurality of inks having different color materials, the plural discharge ports of said recording heads are comprised of a plurality of discharge port trains corresponding to the plural inks having different dye densities in ink, and said plural inks having different dye densities in ink are divided and held in the same ink container.

62. The ink-jet recording apparatus according to claim 61, wherein said plural inks having different dye densities in ink have different penetrabilities on a recording medium.